

## NEW APPLICATION OF RAILWAYS TO SUPPLY TOWNS AND CITIES WITH WATER.

AN agreement has been executed between a committee of inhabitants of Edinburgh and the committee of management of the Caledonian Railway, for the use of part of that line for the supply of the city with water.

The following extract from the proceedings of a public meeting in Edinburgh, the Lord Provost being in the chair, will serve to shew the view which is taken in Edinburgh on this subject.

Mr. Hunter, after having stated the position of the inhabitants of Edinburgh with respect to their present defective supply of water, thus proceeded:—From a report of Mr. Rankine,—a young engineer of high promise,—it was thought a good supply of water could be brought along the line of the Caledonian Railway. You are generally aware that the line of that railway will, at a distance of 12 or 14 miles from Edinburgh, come along high grounds, saturated with the fluid of which we stand in need, and thus afford an ample supply of pure water to the city, provided the requisite measures be taken to render those sources effective. Mr. Rankine has made a survey of the line through which the railway is to pass, and I will now read to you his letters to Mr. Morton, the secretary, on the subject, giving an estimate of the probable expense of putting the plan into execution. [Here Mr. Hunter read the letters referred to, from which it appeared that the total sum required to bring a supply of water by the proposed line, which would give 226,500 gallons per day, or about 14 gallons to each inhabitant of Edinburgh and Leith, would not exceed (exclusive of the cost of distributing pipes in Edinburgh) 85,000*l.* or 90,000*l.*] This statement (continued Mr. Hunter) is made upon a rough estimate only, but I think it is sufficient for present purposes, and is perfectly satisfactory. The Lord Provost, along with the Provost of Leith, Mr. Morton, and other gentleman who have taken a great interest in promoting this plan, highly merit the gratitude of their fellow-citizens for the manner in which they have acted. They knew no time was to be lost, for, as I shall immediately shew you, it is altogether indispensable that we should come to a final decision, and be ready to act when the Caledonian Railway Bill is before the House of Lords, which I hope will be at no very distant period of next session. After communicating with the Railway Company, the following heads of agreement were drawn up:—

1. That the said second parties (inhabitants' committee), or any public board of trustees, or company of shareholders, to whom they may transfer their right under this agreement, shall be entitled and have right, at their own expense, or having obtained Parliamentary or other sufficient powers for that purpose, to lay down or carry a conduit or pipe capable of delivering from 300 to 500 cubic feet of water per minute, along the line of the Caledonian Railway, from a point at or on the north side of its summit level near Cobbinshaw to the Edinburgh terminus; and to convey water thereby for supplying the city of Edinburgh and town of Leith and neighbourhood from such suitable springs or streams as they may acquire right to. The arrangements for forming said conduit or laying said pipe, and for connecting the same with the springs or reservoirs, shall also be made and executed according to plans to be submitted and approved of by the engineer of the Railway Company, and to his satisfaction, and the arrangements for maintaining, repairing, and using such works after they are executed, shall also be subject to the approbation of the Railway Company's engineer.

2. That any springs or streams of water that may be found in the line of the cuttings of the railway, may at convenient time and seasons be taken and collected by the said second parties, and also convey along said pipe or conduit, in so far as the said Railway Company may not require them—the said second parties always obtaining the consent of any parties having right to such springs or streams.

3. That the Railway Company shall be entitled to take from said pipe or conduit, if formed, a supply of water for their engines, or any other purposes, at such places or stations

as may be pointed out by the said company, such supply not exceeding in all 20 cubic feet per minute.

4. That the said second parties shall use their best endeavours to aid the Railway Company in procuring an Act of Parliament for the formation of the said railway.

5. That the agreement now made shall not be binding upon either party, unless the engineer of the railway shall be satisfied that the proposed conduit or pipe can be laid in the line of the railway, and maintained and made use of, without causing injury or risk thereto.

6. It is anticipated by the second parties, that the fulfilment of the plan proposed will not cause any material addition to the expense of forming the line of railway. But as the parties are not at present fully informed in regard to this point, it is further agreed, that if the engineer of the Railway Company shall find that the expense of the railway will be thereby increased, the second parties shall pay the whole additional expense that may be incurred by the Railway Company, in consequence of the acts of the said second parties, as the same may be ascertained by the engineer of the railway.

7. That the second parties or their forebears shall be bound to state, within eight days after the Bill for the railway shall have been read a second time in the House of Lords, whether they intend to take advantage of, and act upon, this agreement or not; and in the event of their failing to do so, they shall forfeit all right under it.

8. It being the object of the Caledonian Railway Company by thus lending the use of their line of railway, to assist in furnishing to the cities of Edinburgh and Leith a cheap and ample supply of water, through a public trust to be created for that purpose—but it being stated by the second parties hereto, that the contemplated works must probably originate in a private company; therefore it is conditioned, that in the event of a public trust being at any time created, and executing or using the contemplated works for the purpose aforesaid, the Caledonian Railway Company shall have the power of exacting a sum not exceeding 5*l.* annually in the name of lordship; but should the contemplated works be executed and carried on by a private company, then the Caledonian Company shall be entitled to claim annually from said company one-tenth of the nett surplus profits arising from said undertaking, whenever such nett surplus profits shall amount to or exceed 5 per cent. per annum on the capital laid out; or in the event of said surplus amounting to 4½ per cent. and being less than 5 per cent., the difference between 4½ and 5 per cent., whatever it may amount to, shall be paid to the Railway Company over and above said lordship of 5*l.* annually in all events to be exigible; declaring that if such company shall at any time transfer the concern and works to a public trust, then the right of the Railway Company to the said tenth of the nett surplus profits shall cease, and the payment shall be restricted to a sum not exceeding 5*l.* annually of lordship as aforesaid.

**THE TIMBER TRADE.**—It is said that the timber, wool, and guano trades are the only ones in which large sums of money have not been lost by importers during the present year, and it is a fact worthy of notice that in two out of three of these trades the protective system has been, in whole or in part, abandoned during the last four years. It will be remembered that one of Sir Robert Peel's earliest measures was to diminish the amount of protection on colonial timber, and it was most confidently predicted at the time that the colonists would be ruined by the change. The result has shewn that this was a false prophecy, for the timber trade has never been in a more healthy or prosperous state. This is partly the result of a breaking up of a system of speculation and overtrading, but still more of the revival of trade and commerce. People have once more begun to build houses, mills, warehouses, and ships, and the result has been to create a brisk demand for timber, and to shew that commercial and manufacturing prosperity are of infinitely more value in the timber trade than all the protecting duties ever invented.—*Liverpool Times.*

## ON THE PLAN ADOPTED IN VENTILATING THE CELLS OF THE PENTONVILLE PRISON.

BY DR. OWEN REES,

Principal Medical Officer of the Prison.

THE report of Major Jebb on the Pentonville Prison, recently presented to Parliament by command of her Majesty, has once more drawn public attention to the various experiments now being made there. As the whole system must necessarily hinge upon the health of the prisoners, and as their health must be affected for the better or for the worse, according to the plan adopted in warming and ventilating their cells, much attention has been given to this important subject. There are various opinions afloat with respect to the efficiency of the plan adopted; some go so far as to condemn it *in toto*, others call only for a modification, while a few are to be found who confess that they cannot imagine the ingenuity of man to devise a more perfect system.

It will be well if these differences of opinion are cleared up, and the truth demonstrated, before the Government commence the proposed introduction of the same plan into the various prisons throughout the country; and it is with this view that we present our readers with the subjoined report, our object being to excite discussion, and to induce observation and experiment:—

"Having been desired to give my opinion in writing on the plan adopted for ventilating and warming the prison, I beg leave to state, that the former of these objects has been most effectually attained during every season of the year.

Prisoners employed at trades requiring great exertion have frequently, when questioned, spoken in terms of praise of their cells as a workshop, even during the warmest months of the summer.

During the winter complaints have occasionally been made, having their origin in an excess of warmth, rather than a deficiency of ventilation, the former producing distress under exercise, which was not always attributed to its proper cause.

The experiments which have been made on several occasions in order to test the purifying powers of the system in use, have shewn its superiority over the usual plan of stove and chimney ventilation, an advantage mainly to be attributed to the perfect diffusion obtained by the method applied to the cells, while the greater part of the fresh air entering a room and passing up a chimney, is productive of draught, and therefore less available as a purifying agent.

The bulk of air passing through each cell was ascertained at the commencement of last summer, to be about 30 cubic feet, or 180 gallons per minute; but the quantity at present drawn through each cell must be more than this, in consequence of the flues having become thoroughly dry since the experiments were made.

The prison cells contain about 800 cubic feet of air, and 180 gallons per minute pass through every cell, with the advantage of perfect diffusion; thus all conditions appear to have been secured to render the ventilation in every respect satisfactory.

As regards the plan which has been adopted for warming the cells, some difficulty has been experienced in regulating the heat, any required temperature when once obtained not admitting of being materially lowered under from 10 to 14 days after the fires have been extinguished. This inconvenience is owing to the non-conducting nature of the materials of which the building is constructed, and the large extent of surface for radiating heat contained within the fresh-air flues; and in virtue of the same conditions, nearly a fortnight has been required even now, that the building is dry, in order materially to raise the temperature of the cells by means of the winter fires.

Notwithstanding the difficulty above alluded to, it is fully anticipated that when the properties of the apparatus are better ascertained in relation to its effects on the building, that the quantity of coal for consumption during the 24 hours will admit of being so adjusted, as to produce any required temperature within such limits as shall remove all likelihood of inconvenience being felt either from excess of heat or cold.

It might at first view be supposed, that since